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(54) **REDUCED SUGAR COMPOSITION**

ZUSAMMENSETZUNG MIT VERRINGERTEM ZUCKERGEHALT

COMPOSITION À TENEUR RÉDUITE EN SUCRE

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Description**Field of the Invention**

- 5 **[0001]** The present invention relates to a sugar paste substrate with a reduced sugar content, which can be used in standard sugar paste substrate processes, for example to produce printed decorations.

Background of the Invention

- 10 **[0002]** Sugar paste substrates are widely used in the food industry to provide sheets suitable for decoration, for example to apply to cakes and the like.
- [0003]** Typically sugar paste substrates are formed into sheets (approximately 0.7 mm to 6.0 mm thick) and the sheets can then be cut, printed on, or punched out to form sugar paste decorations or plaques for the application to other food products such as cakes.
- 15 **[0004]** The production process requires a sugar paste product to be slightly flexible to allow rolling and processing, not deleterious to print and stable under conditions of use.
- [0005]** Edible ink formulations may be provided to a sugar paste substrate using a "screen printing process" wherein a screen fixture is positioned over a surface of a backing paper and the edible material is manually forced through a screen mesh using a squeegee or similar device. Edible ink formulations are well known in the art and can include a viscosity controller, film forming compound, an emulsifier, a food grade colourant and optionally plasticizers and / or humectants. They may be prepared as aqueous solutions.
- 20 **[0006]** Present sugar paste substrates include a significant percentage of sugar e.g. 85-90% sugar (78% sucrose, 12% glucose syrup). In view of a desire by some individuals who consume the products, food retailers and many governments there is a drive to reduce the sugar content in food. Reduction of sugar in sugar paste substrates would therefore be advantageous. Current regulations indicate that the indication "reduced sugar" can only be used where the reduction in content is at least 30% compared to a similar product and the amount of energy of the product is equal to or less than the amount of energy in a similar product.
- 25 **[0007]** An additional challenge of reducing the sugar percentage in such substrates, whilst retaining suitable processing properties, is that common substitutes for sugar, such as isomalt or other polyols, when used in amounts greater than 10%, must be indicated on the packaging of the product with the warning "excessive consumption may cause laxative effects".
- 30 **[0008]** US 2009/0214726 A1, WO 00/53024 A1, and WO 2017/122212 A1 disclose confectionary compositions comprising fondant, fructooligosaccharides and starch. WO 2009/023997 A1 discloses a sugar paste confectionary comprising fondant and fructooligosaccharides. US 3687690 A and WO 94/21826 A1 disclose confectionary compositions containing starch.
- 35 **[0009]** Thus, it would advantageous to provided alternative compositions.

Summary of the Invention

- 40 **[0010]** The present inventors have determined a sugar paste substrate composition which can be utilised under standard processes to produce printed decorations or be coloured or which is provided in a white form. Further the composition has a reduced sugar content in comparison to typical substrates for use in the production of printed decorations. Suitably the composition comprises no polyols or polyols at less than 10%, suitably less than 5%.
- [0011]** Accordingly a first aspect of the present invention provides a sugar paste substrate composition comprising 45 50-60% fondant by weight, wherein the fondant comprises sugar and at least one of glucose syrup and dried glucose syrup; 10-15% fructooligosaccharides (FOS) by weight wherein the FOS comprises at least one of oligofructose or oligofructan; and 20-30% starch by weight.
- [0012]** As would be understood in the art, the fondant could be provided in a premixed form or separately as sugar and glucose syrup (dried or liquid). If the fondant is provided to the mixture as separate components of sugar and glucose syrup (dried or liquid) then the same overall mixture and ratio can be provided.
- 50 **[0013]** Suitably, the starch in the substrate composition may include starches from any native source, wherein native indicates a starch found in nature. Suitable sources for the starch are cereals, tubers, roots, legumes, fruit. Suitably the starch may be provided from sources including; corn, pea, potato, sweet potato, sorghum, banana, barley, wheat, rice, sago, amaranth, tapioca, arrowroot, canna and low (suitably less than 10%, suitably less than 5% amylose) and high (at least 40% weight amylose) amylose containing varieties thereof. Suitably the starch may be provided by corn starch, arrow root starch, katakuri starch, potato starch, sago starch, maize (corn) starch, wheat starch, waxy starches, rice starch and derivatives thereof. Suitably the starch may comprise rice starch or tapioca starch. Suitably starch alternatives may be kuzu powder, sahlab, soy starch, water chestnut flour, almond flour, garbanzo bean flour or coconut flour. Suitably
- 55

a starch may comprise modified starches, for example distarch phosphate E1412, or acetylated distarch E1422. Suitably a modified starch may be, for example, at least one of a crosslinked starch, modified with blocking groups to inhibit retrogradation, modified by addition of lipophilic groups, acetylated starches, hydroxytheyleated and hydroxypropylated starches, inorganically esterified starches, cationic, anionic and oxidized starches, zwitterionic starch or starches, starch or starches modified by enzymes, and combinations thereof.

[0014] Those of skill in the art would understand that the quantity of starch provided, based on the quantity of tapioca starch used in the examples, may require adjustment, for example 2:1 to 2 ratio of tapioca starch to corn starch, or potato starch, or arrowroot.

[0015] Suitably the starch may have between 15 to 18% amylose. Suitably the starch granules may be smooth spheres with sizes ranging from about 5 to 25 microns.

[0016] Suitably the starch may have high water binding capacity. Suitably the starch may have good resistance to shear. Suitably the starch may provide freeze/thaw stability. Suitably the starch may provide a firm texture to the sugar paste composition. Typically it is considered tapioca starch provides such suitable functional aspects and similar functional aspects could be provided by an alternative starch. Suitably the starch may provide a null flavour, and neutral colour to the sugar paste composition. Suitably a neutral colour provides for a white substrate with little discolouration. Suitably the starch may provide a combination of at least two of high water binding capacity, good resistance to shear, freeze/thaw stability, firm texture, a null flavour, and neutral colour to the sugar paste composition.

[0017] Suitably the starch may be maize starch. Suitably the starch may be tapioca starch.

[0018] Suitably the FOS may be any suitable oligofructose or oligofructan as known in the art, for example the FOS may be provided as fructose, or Fructopure™ (Crystalline Fructose). Suitably maltinol powder, for example Maltilite P200™, or isomalt may be provided although these are sugar alcohols.

[0019] Suitably when mixed with the fondant and FOS, the starch provides a smooth dry paste.

[0020] Whilst not wishing to be bound by theory, the inventors consider that FOS is not solely acting as a sweetener in the sugar paste composition, but also provides an advantageous texture when provided with the starch, in particular tapioca starch.

[0021] Suitably, the FOS and starch (suitably tapioca starch) combination may be provided at a ratio of about 1:2. The inclusion of the FOS and a starch, suitably a tapioca starch combination allows the amount of sugar and glucose, for example glucose syrup to be reduced in the sugar paste composition.

[0022] Suitably the sugar paste composition may comprise sugar, glycerol, glycerin, water and may contain further carbohydrate, viscosity modifiers and thickener materials.

[0023] Suitably the fondant comprises sugar and glucose syrup or dried glucose syrup as would be known in the art, suitably comprising sugar and glucose syrup or dried glucose syrup at a ratio of about 10:1.

[0024] As indicated above, in embodiments fondant may be suitably provided as the separate ingredients sugar and glucose syrup (dried or liquid) to the mixture.

[0025] Suitably the composition may further comprise a preservative. For example potassium sorbate may be provided in the composition, suitably at about 0.2%.

[0026] Suitably the composition may further comprise a humectant. For example glycerine or a sorbitant or other suitable humectant as known in the art may be provided. Suitably a humectant may be provided at about 1 to 8%, suitably 1 to 2% (particularly where the humectant is glycerine), suitably about 1.5%.

[0027] Suitably the composition may comprise polysaccharide fibres such as inulin, guar gum, etc to improve elasticity and to aid the creation of a smooth appearance of the sugar paste.

[0028] Suitably the composition may further comprise at least one gum or binder, for example xanthan gum. Xanthan gum has been found to be particularly advantageous for sheeted paste. However, as the skilled person would understand, that other gums or binders may provide suitable functional qualities, for example gums and binders such as guar, acacia, locust bean, tragacanth, CMC, sodium alginate, gelatine or pectin or combinations thereof may be provided. Suitably a gum may be provided at about 1 to 2%, suitably about 1.6%

[0029] Suitably sugar can be considered the generalized name for sweet, short-chain soluble carbohydrates, many of which are used in food and would be known in the art. Comprising carbon, hydrogen and oxygen, carbohydrate can be derived from a range of sources. Simple monosaccharides can include glucose, fructose, galactose, disaccharides include maltose and lactose and longer chains of monosaccharides are called polysaccharides.

[0030] Suitably the composition may comprise flavouring. Suitably the composition may comprise flavouring enhancing agents. Suitably a combination of favouring and flavouring enhancing agents may be provided.

[0031] Flavouring may be natural or artificial flavors, for example extracts derived from fruits, plants, e.g. vanilla extract, natural oils, or suitable aldehydes or esters as known in the art.

[0032] In embodiments the reduced sugar paste can comprise:

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Fondant (sugar 88.5-91.5%, dried glucose syrup 8.5-11.5%)	50-60%
Tapioca Starch (suitably Creamgel Tapioca Starch)	20-30%
FOS (suitably Actilight 950P FOS)	10-15%
Water	2-6%
Fat (suitably PALMAX SG Fat)	3-6%
Binder or gum (suitably Xanthan Gum)	1-2%
Humectant (suitably Vegetable Glycerine)	1-8%
Preservative (suitably Potassium Sorbate)	0-1%

[0033] In embodiments the reduced sugar paste can comprise:

Fondant (sugar 88.5-91.5%, dried glucose syrup 8.5-11.5%)	54.9%
Tapioca Starch (suitably Creamgel Tapioca Starch)	20.9%
FOS (suitably Actilight 950P FOS)	10.4%
Water	5.3%
Fat (suitably PALMAX SG Fat)	5.2%
Binder or gum (suitably Xanthan Gum)	1.6%
Humectant (suitably Vegetable Glycerine)	1.5%
Preservative (suitably Potassium Sorbate)	0.2%

[0034] As will be appreciated by those of skill in the art, Actilight™ is a powder of fructooligosaccharides soluble dietary fibres, short-chain (3 to 5 DP).

[0035] As will be appreciated by those of skill in the art Creamgel™ is native tapioca starch.

[0036] Suitably sugar and liquid glucose syrup can be provided to provide the fondant. Alternatively sugar and dry glucose syrup can be provided to provide the fondant. Suitably mixes and ratios to form fondant would be known in the art.

[0037] Suitably further ingredients or additives may be provided to a composition e.g., colours, flavourings or sweeteners; other gums such as acacia gum, locust bean gum, tragacanth; and / or emulsifiers such as soya lecithin, glycerol monostearate. Suitably, a colouring may be provided to the composition, for example at least one or more of; E100, E101, E102, E104, E110, E120, E122, E123, E124, E127, E129, E131, E132, E133, E140, E141, E142, E150a-d, E151, E153, E155, E160a-e, E161b, E161g, E162, E163, E170, E171, E172, E173, E174, E175, E180. Suitably, fruit extracts and concentrates, vegetable extracts and concentrates, spirulina extract and concentrate or combinations of these may be provided (for example as colouring or flavourings) in the composition..

[0038] Advantageously, the composition does not require the use of polyols at level that requires warnings to be applied to the food product. Sugar alcohols or polyols may refer to, for example erythritol, galactitol, hydrogenated starch syrups, including maltitol and sorbitol syrups, inositols, isomalt, lactitol, maltitol, mannitol, xylitol and combinations thereof. Advantageously a composition may be provided where the ingredients are considered to be natural allowing the composition to be "clean label".

[0039] According to a second aspect of the present invention there is provided a method of making a sugar paste composition comprising the steps:

combining a fondant composition with a binder such as gum,
providing water and humectant (liquid components),
providing a starch, for example tapioca starch and FOS, wherein the fondant composition: starch (tapioca starch):
and FOS are provided at about a 5:2:1 ratio providing fat to the mixture.

[0040] Suitably each of the components may be blended to provide the composition. For example suitably a Z-blade mixer may be used to blend the composition.

[0041] Suitably the method of making the sugar paste composition comprises the steps: combining fondant composition

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with about 1.5% gum, blending with about 5% water, about 1.6% humectant, further blending a starch, for example tapioca starch and FOS, wherein the fondant composition: starch (suitably tapioca starch) and FOS are provided at about a 5:2:1 ratio (for example a fondant composition at mixture 54% fondant, 20% starch (tapioca starch), 10% FOS) and further blending about 5% fat.

[0042] Suitably the fondant composition may comprise 8.5% -11.5% glucose syrup / dried glucose with 88.5% to 91.5% sugar. In embodiments this can be blended as an initial step in the method. Alternatively pre-blended fondant may be provided for use in the method.

[0043] Suitably in the method the composition may comprise

Fondant (sugar 88.5-91.5%, dried glucose syrup 8.5-11.5%)	50-60%
Tapioca Starch (suitably Creamgel Tapioca Starch)	20-30%
FOS (suitably Actilight 950P FOS)	10-15%
Water	2-6%
Fat (suitably PALMAX SG Fat)	3-6%
Binder or gum (suitably Xanthan Gum)	1-2%
Humectant (suitably Vegetable Glycerine)	1-8%
Preservative (suitably Potassium Sorbate)	0-1%

[0044] Suitably in the method the composition may comprise

Fondant (sugar 88.5-91.5%, dried glucose syrup 8.5-11.5%)	54.9%
Tapioca Starch (suitably Creamgel Tapioca Starch)	20.9%
FOS (suitably Actilight 950P FOS)	10.4%
Water	5.3%
Fat (suitably PALMAX SG Fat)	5.2%
Binder or gum (suitably Xanthan Gum)	1.6%
Humectant (suitably Vegetable Glycerine)	1.5%
Preservative (suitably Potassium Sorbate)	0.2%

[0045] When using dried glucose syrup, all dry ingredients may be combined together and mixed. When using liquid glucose syrup, the dry ingredients may be mixed before the addition of glucose syrup.

[0046] Suitably the method may further comprise rolling the reduced sugar substrate into a sheet. Suitably the sheet may be 0.7 mm to 6 mm in thickness.

[0047] Suitably the sheet may be an unprinted white sheet, or, if the method includes the addition of colouring to the mixture a coloured sheet.

[0048] Suitably the process may comprise the step of forming the substrate into a decoration, for example a rotary moulded decoration.

[0049] Suitably, an ink may be provided to the substrate. A variety of inks may be used in relation to such substrates and can be considered as cellulose-based or fondant-based.

[0050] Typically cellulose ink may comprise: water 40-90%, humectant 0.1-20%, modified cellulose (E464) 5-10%, ethanol up to 8%, glycerine up to 4%, propylene glycol up to 1%.

[0051] Typically fondant ink may comprise: fondant icing sugar (sugar 89%, glucose syrup 11%) 20-70%, water 10-30%, emulsifier (E322) 3-7%, maize starch up to 25%, ethanol 2-5%, glycerine 0.3-5%, propylene glycol up to 1%.

[0052] All percentages are provided as weight %.

[0053] Preferred features and embodiments of each aspect of the invention are as for each of the other aspects mutatis mutandis unless context demands otherwise.

[0054] "About" shall generally mean an acceptable degree of error for the quantity measured given the nature or precision of the measurements.

[0055] Throughout the specification, unless the context demands otherwise, the terms 'comprise' or 'include', or variations such as 'comprises' or 'comprising', 'includes' or 'including' will be understood to imply the includes of a stated integer or group of integers, but not the exclusion of any other integer or group of integers.

[0056] Embodiments of the present invention will now be described by way of example only with reference to the accompanying figure in which:

Figure 1 provides an exemplary process of the present invention.

Examples

Example 1 - Sugar paste composition

[0057] A sugar paste composition, with reduced sugar content, was provided comprising

Fondant Icing Sugar (sugar 88.5-91.5%, dried glucose syrup 8.5-11.5%)	100.00	KG	54.9%
Creamqel Tapioca Starch	38.00	KG	20.9%
Actilight 950P FOS	19.00	KG	10.4%
Water	9.60	KG	5.3%
PALMAX SG Fat	9.50	KG	5.2%
Xanthan Gum	3.00	KG	1.6%
Vegetable Glycerine	2.70	KG	1.5%
Potassium Sorbate	350.00	G	0.2%

in which the component parts were combined by

1. Combining fondant icing sugar and xanthan gum, suitably using a Z-blade mixer,
2. Dissolving the potassium sorbate in water at 90°C,
3. Adding the glycerine to the sorbate solution and stirring,
4. Adding the glycerine and sorbate solution to the fondant icing sugar and xanthan gum mixture,
5. Blending the combined solution and mixture for 3 minutes, suitably using the Z-blade mixer,
6. Combining Actilight FOS and tapioca starch and adding to the blended mixture and solution of step 5,
7. Blending the mixture of step 6 for 2 minutes whilst adding fat at 50-60°C,
8. Blending the mixture of step 7 for a further 6 minutes

[0058] Suitably, the blended mixture of step 8 is allowed to sit for approximately 48 hours before use. Suitably the blended mixture may be stored bagged for future use.

[0059] This example of the composition can advantageously be used for screen printing and to provide larger flat decorations.

Example 2

[0060] Further compositions of the sugar paste composition were provided as set out below.

	Example 1	Variant 1	Variant 2
Fondant icing (sugar, glucose syrup)	54.90%	56.70%	56.20%
Water	5.27%	4.30%	5.50%
Palm fat	5.22%	2.30%	4.50%
Glycerine	1.48%		2.10%
Sorbitol		4.66%	
Xanthan	1.65%	1.75%	1.50%

(continued)

	Example 1	Variant 1	Variant 2
Fondant icing (sugar, glucose syrup)	54.90%	56.70%	56.20%
LBG		0.09%	
Pot sorbate	0.19%	0.20%	0.20%
Actilight 950P	10.43%	10.00%	10.00%
Tapioca	20.86%	20.00%	20.00%
	100.00%	100.00%	100.00%

[0061] It is considered the variant compositions noted above can be advantageous in end user printing, for example using a modified desktop printing system.

[0062] In particular variant 2 is considered to be particularly advantageous for production of more flexible decorations. Such decorations can be placed on a curved surface without cracking or breaking.

[0063] It is proposed the increased glycerine content of variant 2 provides for decreased moisture loss by the composition. This is considered to be particularly suitable for smaller decorations where moisture loss would otherwise would lead to drying of the sugar paste.

Example 3 - Use of sugar paste composition

[0064] The production process for printed decorations includes paste making, sheeting (typically from 0.7 to 6 mm, suitably 2 mm thick), printing, die cutting, removal of excess substrate, and packing.

[0065] The core production process is as follows

1. Roll prepared sugar paste to an even thickness; 0.7 to 2 mm depending on product (done as a continuous roll, for example with a width typically 320mm)
2. Cut off sheets from roll (e.g., 320x320mm)
3. Create design on surface, e.g., by screen or off-set printing
4. Punch out individual decorations or plaques using a die cutter
5. Remove excess substrate surrounding decoration (referred to as skeletal waste)

[0066] Although the invention has been particularly shown and described with reference to particular examples, it will be understood by those skilled in the art that various changes in the form and details may be made therein without departing from the scope of the present invention.

Claims

1. A sugar paste substrate composition comprising:

50-60% fondant by weight, wherein the fondant comprises sugar and at least one of glucose syrup and dried glucose syrup;
10-15% fructooligosaccharides (FOS) by weight, wherein the FOS comprises at least one of oligofructose or oligofructan; and
20-30% starch by weight.

2. The sugar paste substrate composition as claimed in claim 1 wherein the FOS and starch are provided at a ratio of 1:2.

3. The sugar paste substrate composition as claimed in any preceding claim wherein the starch is selected from corn, maize, pea, potato, sweet potato, sorghum, banana, barley, wheat, rice, sago, amaranth, tapioca, arrowroot, canna starch.

4. The sugar paste substrate composition as claimed in any preceding claim wherein:

the fondant comprises sugar and glucose syrup or dried glucose syrup at a ratio of 10:1;
the fondant is provided as the separate components sugar and glucose syrup; or
the fondant comprises 88.5-91.5% sugar and 8.5-11.5% dried glucose syrup.

- 5 **5.** The sugar paste substrate composition as claimed in any preceding claim wherein the composition further comprises at least one of a humectant, a preservative, and a gum or binder, for example xanthan gum.
- 6 **6.** The sugar paste substrate composition as claimed in any preceding claim wherein the starch is tapioca starch.
- 10 **7.** The sugar paste substrate composition as claimed in claim 6 comprising:
2-6% water by weight;
3-6% fat by weight;
1-2% of an ingredient selected from a binder and a gum by weight; and
15 1-8% of a humectant by weight.
- 8 **8.** The sugar paste substrate composition as claimed in any preceding claims comprising:
54.9% of the fondant by weight;
20 20.9% of the starch by weight, wherein the starch is tapioca starch;
10.4% of the FOS by weight;
5.3% water by weight;
5.2% fat by weight;
1.6% of a binder or a gum by weight;
25 1.5% of a humectant by weight; and
0.2% of a preservative by weight.
- 9 **9.** A method of making a sugar paste composition comprising:
30 providing a fructooligosaccharide (FOS) comprising at least one of oligofructose or oligofructan;
providing a fondant composition comprising sugar and glucose syrup;
providing a starch; and
forming a mixture by combining the fondant composition, the starch and the FOS at a ratio of 5:2:1 by weight.
- 35 **10.** The method as claimed in claim 9, wherein forming the mixture comprises:
combining the fondant composition with a binder;
adding water,
adding the starch and the FOS; and
40 adding fat.
- 11 **11.** The method as claimed in claim 9, wherein forming the mixture comprises:
combining the fondant composition with the FOS and a binder;
45 adding water,
adding the starch; and
adding fat.
- 12 **12.** The method as claimed in claim 9 or 11, wherein the mixture comprises:
50 combining the fondant composition with about 1.5% gum;
blending with about 5% water, and about 1.6% humectant;
further blending the starch and the FOS; and
further blending about 5% fat.
- 55 **13.** The method of any one of claims 9 to 12 wherein the starch is selected from corn, maize, pea, potato, sweet potato, sorghum, banana, barley, wheat, rice, sago, amaranth, tapioca, arrowroot, and canna starch.

14. The method of any one of claims 9 to 13 wherein the starch is tapioca starch.

15. The method as claimed in claim 14, wherein the sugar paste composition comprises:

- 5 50-60% of the fondant composition by weight;
- 20-30% of the starch by weight;
- 10-15% of the FOS by weight;
- 2-6% water by weight;
- 3-6% fat by weight;
- 10 1-2% of an ingredient selected from a binder and a gum by weight; and
- 1-8% of a humectant by weight.

Patentansprüche

- 15 1. Zuckerpastensubstratzusammensetzung, umfassend:
 - zu 50-60 Gew.-% Fondant, wobei der Fondant Zucker und mindestens eines von Glukosesirup und getrocknetem
 - 20 Glukosesirup umfasst;
 - zu 10-15 Gew.-% Fructooligosaccharide (FOS), wobei die FOS mindestens eines von Oligofructose oder Oligo-
 - fructan umfasst; und
 - zu 20-30 Gew.-% Stärke.
- 25 2. Zuckerpastensubstratzusammensetzung nach Anspruch 1, wobei die FOS und die Stärke in einem Verhältnis von 1:2 bereitgestellt werden.
- 3. Zuckerpastensubstratzusammensetzung nach einem der vorstehenden Ansprüche, wobei die Stärke ausgewählt ist aus Korn, Mais, Erbse, Kartoffel, Süßkartoffel, Sorghum, Banane, Gerste, Weizen, Reis, Sago, Amaranth, Ta-
- 30 pioka, Pfeilwurzel, Cannastärke.
- 4. Zuckerpastensubstratzusammensetzung nach einem der vorstehenden Ansprüche, wobei:
 - der Fondant Zucker und Glukosesirup oder getrockneten Glukosesirup in einem Verhältnis von 10:1 umfasst;
 - der Fondant als die getrennten Komponenten Zucker und Glukosesirup bereitgestellt wird; oder
 - 35 der Fondant zu 88,5-91,5 % Zucker und zu 8,5-11,5 % getrockneten Glukosesirup umfasst.
- 5. Zuckerpastensubstratzusammensetzung nach einem der vorstehenden Ansprüche, wobei die Zusammensetzung ferner mindestens eines von einem Feuchthaltemittel, einem Konservierungsmittel und einem Gummi oder Binde-
- 40 mittel, zum Beispiel Xanthangummi, umfasst.
- 6. Zuckerpastensubstratzusammensetzung nach einem der vorstehenden Ansprüche, wobei die Stärke Tapiokastärke ist.
- 7. Zuckerpastensubstratzusammensetzung nach Anspruch 6, umfassend:
 - 45 zu 2-6 Gew.-% Wasser;
 - zu 3-6 Gew.-% Fett;
 - zu 1-2 Gew.-% einen Inhaltsstoff, ausgewählt aus einem Bindemittel und einem Gummi; und
 - zu 1-8 Gew.-% ein Feuchthaltemittel.
 - 50
- 8. Zuckerpastensubstratzusammensetzung nach einem der vorstehenden Ansprüche, umfassend:
 - zu 54,9 Gew.-% den Fondant;
 - zu 20,9 Gew.-% die Stärke, wobei die Stärke Tapiokastärke ist;
 - 55 zu 10,4 Gew.-% die FOS;
 - zu 5,3 Gew.-% Wasser;
 - zu 5,2 Gew.-% Fett;
 - zu 1,6 Gew.-% ein Bindemittel oder ein Gummi;

zu 1,5 Gew.-% ein Feuchthaltemittel; und
zu 0,2 Gew.-% ein Konservierungsmittel.

9. Verfahren zum Herstellen einer Zuckerpastenzusammensetzung, umfassend:

Bereitstellen eines Fructooligosaccharids (FOS), das mindestens eines von Oligofructose oder Oligofructan umfasst;
Bereitstellen einer Fondantzusammensetzung, die Zucker und Glukosesirup umfasst;
Bereitstellen einer Stärke; und
Bilden einer Mischung durch Kombinieren der Fondantzusammensetzung, der Stärke und des FOS in einem Gewichtsverhältnis von 5:2:1.

10. Verfahren nach Anspruch 9, wobei das Bilden der Mischung umfasst:

Kombinieren der Fondantzusammensetzung mit einem Bindemittel;
Zugeben von Wasser,
Zugeben der Stärke und des FOS; und
Zugeben von Fett.

11. Verfahren nach Anspruch 9, wobei das Bilden der Mischung umfasst:

Kombinieren der Fondantzusammensetzung mit dem FOS und einem Bindemittel;
Zugeben von Wasser,
Zugeben der Stärke; und
Zugeben von Fett.

12. Verfahren nach Anspruch 9 oder 11, wobei die Mischung umfasst:

Kombinieren der Fondantzusammensetzung mit etwa 1,5 % Gummi;
Mischen mit etwa 5 % Wasser und etwa 1,6 % Feuchthaltemittel;
weiteres Mischen der Stärke und des FOS; und
weiteres Mischen von etwa 5 % Fett.

13. Verfahren nach einem der Ansprüche 9 bis 12, wobei die Stärke ausgewählt ist aus Korn, Mais, Erbse, Kartoffel, Süßkartoffel, Sorghum, Banane, Gerste, Weizen, Reis, Sago, Amart, Tapioka, Pfeilwurzel, und Cannastärke.

14. Verfahren nach einem der Ansprüche 9 bis 13, wobei die Stärke Tapiokastärke ist.

15. Verfahren nach Anspruch 14, wobei die Zuckerpastenzusammensetzung umfasst:

Zu 50-60 Gew.-% den Fondant;
zu 20-30 Gew.-% die Stärke;
zu 10-15 Gew.-% das FOS;
zu 2-6 Gew.-% Wasser;
zu 3-6 Gew.-% Fett;
zu 1-2 Gew.-% einen Inhaltsstoff, ausgewählt aus einem Bindemittel und einem Gummi; und
zu 1-8 Gew.-% ein Feuchthaltemittel.

Revendications

1. Composition de substrat de pâte à sucre comprenant :

50 à 60 % en poids de fondant, dans laquelle le fondant comprend du sucre et au moins un parmi du sirop de glucose et du sirop de glucose séché ;
10 à 15 % en poids de fructooligosaccharides (FOS), dans laquelle le FOS comprend au moins un parmi l'oligofructose ou l'oligofructan ; et
20 à 30 % en poids d'amidon.

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2. Composition de substrat de pâte à sucre selon la revendication 1, dans laquelle les FOS et l'amidon sont fournis à un rapport de 1:2.
- 5 3. Composition de substrat de pâte à sucre selon l'une quelconque revendication précédente, dans laquelle l'amidon est choisi parmi maïs, pois, pomme de terre, patate douce, sorgho, banane, orge, blé, riz, sagou, amarante, tapioca, marante, amidon de canne à sucre.
- 10 4. Composition de substrat de pâte à sucre selon l'une quelconque revendication précédente, dans laquelle :
le fondant comprend du sucre et du sirop de glucose ou du sirop de glucose séché à un rapport de 10:1 ;
le fondant est fourni sous forme de composants séparés, à savoir le sucre et le sirop de glucose ; ou
le fondant comprend de 88,5 à 91,5 % de sucre et de 8,5 à 11,5 % de sirop de glucose séché.
- 15 5. Composition de substrat de pâte à sucre selon l'une quelconque revendication précédente, dans laquelle la composition comprend en outre au moins l'un parmi un humectant, un conservateur et une gomme ou un liant, par exemple de la gomme xanthane.
- 20 6. Composition de substrat de pâte à sucre selon l'une quelconque revendication précédente, dans laquelle l'amidon est de l'amidon de tapioca.
- 25 7. Composition de substrat de pâte à sucre selon la revendication 6, comprenant :
2 à 6 % en poids d'eau ;
3 à 6 % en poids de matière grasse ;
1 à 2 % en poids d'un ingrédient choisi parmi un liant et une gomme ; et
1 à 8 % en poids d'un humectant.
- 30 8. Composition de substrat de pâte à sucre selon l'une quelconque des revendications précédentes, comprenant :
54,9 % en poids du fondant ;
20,9 % en poids de l'amidon, l'amidon étant l'amidon de tapioca ;
10,4 % en poids des FOS ;
5,3 % en poids d'eau ;
5,2 % en poids de matière grasse ;
35 1,6 % en poids d'un liant ou d'une gomme ;
1,5 % en poids d'un humectant ; et
0,2 % en poids d'un conservateur.
- 40 9. Procédé de fabrication d'une composition de pâte à sucre comprenant :
la fourniture d'un fructooligosaccharide (FOS) comprenant au moins l'un parmi oligofructose ou oligofructane ;
la fourniture d'une composition de fondant comprenant du sucre et du sirop de glucose ;
la fourniture d'un amidon ; et
45 la formation d'un mélange en combinant la composition de fondant, l'amidon et le FOS à un rapport de 5:2:1 en poids.
- 50 10. Procédé selon la revendication 9, dans lequel la formation du mélange comprend :
la combinaison de la composition de fondant avec un liant ;
l'ajout d'eau,
l'ajout d'amidon et de FOS ; et
l'ajout de matière grasse.
- 55 11. Procédé selon la revendication 9, dans lequel la formation du mélange comprend :
la combinaison de la composition de fondant avec le FOS et un liant ;
l'ajout d'eau ;
l'ajout d'amidon ; et

l'ajout de matière grasse.

12. Procédé selon la revendication 9 ou 11, dans lequel le mélange comprend :

- 5 la combinaison de la composition de fondant avec environ 1,5 % de gomme ;
 le mélange avec environ 5 % d'eau, et environ 1,6 % d'humectant ;
 le mélange supplémentaire de l'amidon et du FOS ; et
 le mélange supplémentaire d'environ 5 % de matière grasse.

10 **13.** Procédé selon l'une quelconque des revendications 9 à 12, dans lequel l'amidon est choisi parmi maïs, pois, pomme de terre, patate douce, sorgho, banane, orge, blé, riz, sagou, amarante, tapioca, marante et amidon de canne à sucre.

14. Procédé selon l'une quelconque des revendications 9 à 13, dans lequel l'amidon est l'amidon de tapioca.

15 **15.** Procédé selon la revendication 14, dans lequel la composition de pâte à sucre comprend :

- 50- à 60 % en poids de la composition de fondant ;
 20 à 30 % en poids d'amidon ;
 10 à 15 % en poids de FOS ;
20 2 à 6 % en poids d'eau ;
 3 à 6 % en poids de matière grasse ;
 1 à 2 % en poids d'un ingrédient choisi parmi un liant et une gomme en poids ; et
 1 à 8 % en poids d'un humectant.

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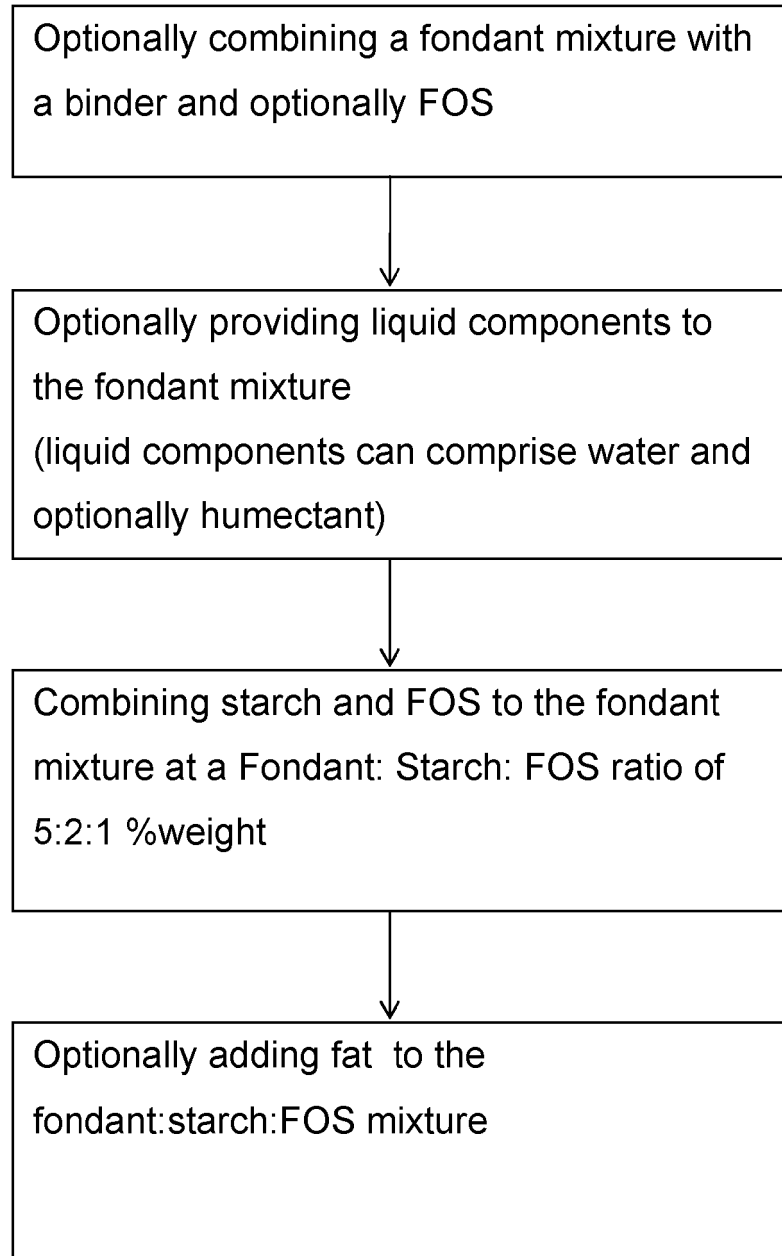
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Figure 1



REFERENCES CITED IN THE DESCRIPTION

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